

EFFECT OF MOTHER'S AGE ON BODY WEIGHT OF LAMBS FROM BIRTH TO WEANING IN VARIOUS STRAINS OF DOMESTIC SHEEP PRAMENKA

Bojana RISTANOVIĆ*, Zoran. Ž. ILIĆ

University of Pristina, Faculty of Agriculture, Kosovska Mitrovica-Lesak,
Kosovo and Metohija, Serbia

Ristanovic, B., Z.Ž. Ilić (2018): *Effect of mother's age on body weight of lambs from birth to weaning in various strains of domestic sheep pramenka*. - Genetika, Vol 50, No. 3, 1055-1065.

This study has been conducted on the domestic sheep Pramenka that is a dominant breed in Serbia. The purpose is to determine the effects of mother's age on suckling and growth of lambs, and to find out at which week the lambs are normally weaned. Research was carried out on 1800 lambs of four strains (Svrljiški, Pirotski, Sjenički, Šarplaninski) of sheep Pramenka (450 lambs per strain) for body weight. The weight of lambs was measured at the time of birth, 30, 60 and 90 days after birth during three years of experiment (2011-2013). Obtained results refer to variability of body weight of lambs at the time of birth, 30, 60 and 90 days after birth depending on mother's age within each of four strains of Pramenka sheep. At the time of birth, the highest average weight (3.79 kg) of lambs was found in second age group of Pirotka genotype, while the highest average weight in third age group was found in remaining three Svrljiška (3.91 kg), Sjenička (3.74 kg) and Šarplaninska (3.97 kg) strain of Pramenka sheep. Thirty days after birth the highest average weight of lambs was found in the second age group of Pirotka genotype (9.36 kg), in the first age group in Svrljiška (9.89 kg), while the highest average weight in third age group was found in remaining two Sjenička (9.51 kg) and Šarplaninska (9.41 kg) strain of Pramenka sheep. Sixty days after birth, the highest average weight of lambs was found in third age group of Pirotka genotype (15.85 kg), in second age group in Svrljiška (15.51 kg) and Sjenička (15.50 kg) genotypes, while the highest average weight in first age group was found in Šarplaninska (14.45 kg) strain of Pramenka sheep. Ninety days after birth, the highest average weight of lambs was found in second age group of Pirotka (20.58 kg) and

Corresponding author: Bojana Ristanović, University of Priština, Faculty of Agriculture, Kosovska Mitrovica, Lešak, Kosovo and Metohia, Serbia, e-mail: bojana.ristanovic@yahoo.com

Šarplaninska (20.45 kg) genotype, while the highest average weight in first age group was found in Svrlijska (24.38 kg) and Sjenička (23.76 kg) strain of Pramenka sheep. The variability in body weight of lambs at birth, as well at different stages of growth after weaning at early growth stages is influenced by direct maternal genotype, strains of Pramenka sheep and age of ewes.

Keywords: Pramenka sheep, body weight of lamb, mother's age

INTRODUCTION

In the production of lambs, genotype as well as influence of the environmental factors and the effect of the interaction of these two factors have a significant role. Sheep are bred to produce lambs for breeding and their meat which is of high quality. Lamb meat has the largest share in the production of sheep meat.

Among a number of factors, mother's age plays an important role in successful sheep production (WOJTOWSKY *et al.*, 1990). Estimation of genotype of sheep can be inferred based on the variability of the genotype and phenotype of the offspring (MORRIS *et al.*, 2000). Dynamics of increase in lambs' weight depends on hereditary and non-hereditary factors (PETROVIĆ *et al.*, 2009). The expression of traits depends on gender, type of birth, mother's age (PETROVIĆ *et al.*, 2011). Also, effects of the lamb weight and age of the ewe were found to be important for the reproductive performance of ewes and for the lamb's growth rate (ACTAŞ *et al.*, 2015). Body weight and growth traits of lambs are known to be affected by the direct and maternal genetic effects as well as by environmental effects (KAMJOO *et al.*, 2014).

In sheep production in Serbia, one of the main races is Pramenka which meets the needs of breeders to obtain meat, milk and wool. It is considered an indigenous race given that its genotype is not significantly altered in breeding programs (PETROVIĆ *et al.*, 2013), even after production traits strains of present Pramenka differ when compared with those 50 years ago (SKALICKI *et al.*, 2003; PETROVIĆ *et al.*, 2006). In Serbia, in the total fund of sheep, race Pramenka has around 80% share, although PETROVIC *et al.* (1994), indicate low genetic potential of sheep Pramenka. Considering great importance of Pramenka for the development of sheep breeding in Serbia, there is an intensive research of genetic potential of Pramenka under influence of various factors of paragenetic nature (ILIC *et al.*, 2012; 2013). The research is conducted with the aim of improving modern and successful production of lambs which will meet high criteria in terms of quantity and quality increment (PETROVIC, 2000; SKALICKI *et al.*, 2003)

The aim of this research is to study the effect of mother's age on breeding of lambs and estimation of body weight in the period from birth to weaning in four different strains of domestic sheep Pramenka.

MATERIAL AND METHODS

Research was carried out in eastern, southern and south-western Serbia, more precisely in the areas where most pramenka is grown. Mating was in season from June to September and ewes lambing begin in December and further prolongs during the winter period.

In breeding of lambs, applied technology is that after ten days after birth, the offspring is separated from their mothers with the possibility of sucking twice during the day. Then, feeding with hay and concentrate mixture for lambs starts. These nutrients were available up to the age of 90 days.

The material for the research included four strains (Svrljiški, Pirotski, Sjenički, Šarplaninski) of Pramenka sheep. In each strain of sheep, mothers were divided into three groups according to their age (1- two years old; 2- three years old, 3-four years old). All experimental animals were properly marked and recorded. Data processing included a total of 1800 lambs (450 lambs per strain of Pramenka sheep).

Research was conducted during the period of three years, from 2011 to 2013, according to pre-established plan. In each year of the experiment, body weight of lambs of all genotypes was measured at the time of birth and 30, 60 and 90 days of age. The measurement was carried out by scale with accuracy of 0.10 kg and all data was used for statistical analysis by using SPSS (Statistical Package for the Social Sciences) statistical software, 20 (2011).

RESULTS

Obtained results in the research indicated that variability of body weight of lambs at the time of birth depended on mother's age. In genotype of the Pirotka Pramenka, the largest body weight of lambs at birth was found in second age group of sheep (3.79 kg) and the lowest body weight of lambs (3.60 kg) was registered in the first age group mothers. The body weight of the lambs of the third group of sheep was (3.71 kg) Table 1.

Table 1. The effect of mother's age on body weight of lambs at the time of birth

Genotype	Mother's age (year)	M	SE	F	Sig.
Pirotka (PI)	1- (two year)	3.601	0.061	2.745	0.065
	2- (three year)	3.790	0.053		
	3- (four year)	3.717	0.055		
Svrljiška (SV)	1- (two year)	3.876	0.055	2.614	0.074
	2- (three year)	3.761	0.047		
	3- (four year)	3.910	0.049		
Sjenička (SJ)	1- (two year)	3.634	0.067	1.145	0.319
	2- (three year)	3.637	0.058		
	3- (four year)	3.748	0.060		
Šarplaninska (SP)	1- (two year)	3.553	0.064	12.053	0.000 **
	2- (three year)	3.810	0.055		
	3- (four year)	3.974	0.058		

* Significance of correlation on the level $p \leq 0.05$

** Significance of correlation on the level $p \leq 0.01$

The influence of mother's age as fixed factor on the body weight of lambs of Pirotka Pramenka was on borderline of statistical significance, but still insignificant ($p > 0.05$).

In population of Svrljiška lamb mother's age had a slightly different influence. The highest body weight of lambs at birth was established in third maternal age group (3.91 kg), while the lowest body weight of lambs was in second age group of sheep (3.76 kg). In the first age group, the body weight of the lambs was (3.87 kg) Table 1.

The influence of mother's age as fixed factor on the body weight of lambs Svrljiška Pramenka was not statistically significant ($p > 0.05$)

Lambs of Sjenička Pramenka genotypes had the highest body weight at the time of birth in the third age group of sheep (3.74 kg). Lambs from the first and second groups of mothers had smaller and equal mass bodies (3.63 kg)

In population of Sjenička sheep, no significant effect of mother's age on body weight at birth of lambs ($p>0.05$) was found.

In Šarplaninska Pramenka, at birth of lambs, the highest body weight was found in third age group of sheep (3.97 kg). The smaller body weight (3,81 kg) was found in the second age groups of mothers, and the lowest body weight of lambs was found in first group of maternal age (3.55 kg) Table 1.

In population of Šarplaninska Pramenka, very significant effect of mother's age on the body mass of lambs at birth was determined ($p>0.01$), Table 1.

At 30 days of age, the influence of mother's age on the body weight of lambs had the following distribution (Table 2).

Table 2. The effect of mother's age on body weight of 30 days old lambs

Genotype	Mother's age (year)	M	SE	F	Sig.
Pirotska (PI)	1- (two year)	9.297	0.143		
	2- (three year)	9.365	0.124	0.071	0.932
	3- (four year)	9.316	0.129		
Svrljiška (SV)	1- (two year)	9.898	0.171		
	2- (three year)	9.868	0.148	0.015	0.985
	3- (four year)	9.833	0.154		
Sjenička (SJ)	1- (two year)	9.495	0.195		
	2- (three year)	9.470	0.168	0.041	0.960
	3- (four year)	9.512	0.175		
Šarplaninska (SP)	1- (two year)	9.272	0.191		
	2- (three year)	9.131	0.165	0.694	0.500
	3- (four year)	9.411	0.172		

The highest average body mass of Pirotska Pramenka lambs was found in the second age group of mothers (9.36 kg), and lowest in the first age group (9.29 kg). The body weight of lambs in third age groups of sheep was 9.36 kg. There was no significant effect of mother's age on the observed traits ($p>0.05$)

The body weight in 30 days old lambs of Svrljiška Pramenka was the highest in the first age group of mothers (9.89 kg), slightly lower (9.86 kg) with lambs from second age group of mothers and the lowest in the third age group of mothers (9.83 kg). The influence of mother's age on body weight of lambs was not statistically significant ($p>0.05$).

Lambs of Sjenička Pramenka had the highest average body weight in third age group of mothers (9.51 kg), slightly lower body mass was found in first age group of mothers (9.49 kg) and the lowest in the second age group of mothers (9.47 kg). There was no significant effect of mother's age on monitored traits ($p>0.05$).

The body weight of 30 days old lambs of Šarplaninska Pramenka was the highest in third age group of mothers (9.41 kg), lower in the first age group of mothers (9.27 kg) and the

lowest in the second age group of mothers (9.13 kg). The influence of mother's age on the body weight of lambs in this genotype was not statistically significant ($p>0.05$)

Conclusion is that the influence of mother's age had no significant effect on body weight of 30 days old lambs in all four genotypes lambs ($p>0.05$) Table 2.

Sixty days from birth, in lambs of genotype Pirotška Pramenka, the highest body mass of lambs was found in the third age group of sheep (15.85 kg), and the smallest body mass (14,86 kg) was registered in the second age groups of mothers. Body weight of lambs of sheep in first age group was 15.11 kg (Table 3).

Table 3. The effect of mother's age on body weight of 60 days old lambs

Genotype	Mother's age (year)	M	SE	F	Sig.
Pirotška (PI)	1- (two year)	15.119	0.581		
	2- (three year)	14.863	0.503	0.986	0.374
	3- (four year)	15.854	0.522		
Svrljiška (SV)	1- (two year)	15.271	0.182		
	2- (three year)	15.515	0.158	0.515	0.598
	3- (four year)	15.396	0.164		
Sjenička (SJ)	1- (two year)	15.313	0.186		
	2- (three year)	15.505	0.161	0.313	0.731
	3- (four year)	15.448	0.167		
Šarplaninska (SP)	1- (two year)	14.458	0.219		
	2- (three year)	14.155	0.190	0.642	0.527
	3- (four year)	14.179	0.197		

The influence of mother's age as fixed factor on the body weight of lambs of Pirotška Pramenka was not significant ($p>0.05$).

In population of lambs of Svrljiška Pramenka, effect of mother's age had the following results. The highest body weight of 60 days old lambs was determined in second age group of mothers (15.51 kg) while the average body weight was the lowest (15.27 kg) in the first age group. In third age group of mothers, the body weight of lambs was (15.39 kg), Table 3.

The influence of mother's age as fixed factors on the body weight of lambs Svrljiška Pramenka was not statistically significant ($p>0.05$).

Sixty days old lambs of Sjenička Pramenka genotype had the highest body weight in the second age group of sheep (15.50 kg) and the lowest body weight was observed in the first age group of mothers (15.31 kg). In third age group of mothers, the body weight of lambs was 15.44 kg (Table 3).

It can be said that in Sjenicka sheep population, no significant effect of mother's age on body weight of 60 days old lambs was found ($p>0.05$).

In the fourth genotype Šarplaninska Pramenka, the highest body mass of 60 days old lambs in first age group of sheep was found (14.45 kg), while the lowest body weight (14,15 kg) was in lambs in second age group of mothers. In third age group of mothers, body weight of lambs was (14.17 kg), Table 3.

In Šarplaninska strain of Pramenka sheep, no significant effect of mother's age on the body mass of 60 days old lambs was also found ($p>0.05$), Table 3.

Values of body weight of 90 days old lambs were presented in Table 4. in relation to mother's age of sheep and four strains of Pramenka genotype.

In Pirotška Pramenka, of the highest average body mass were lambs (20.58 kg) in second age group of mothers and lowest (20.24 kg) in the first group of mothers. Weight of lambs in third age group of sheep was 20.31 kg. Results of statistical testing showed that there was no significant effect found of mother's age on the body weight of lambs ($p>0.05$), table 4.

The body weight of lambs of Svrliška Pramenka was the highest (24.38 kg) in the first age group of mothers, while body weight was the lowest (24.08 kg) in the third age group of mothers. In the second age group of mothers, the average body weight was 24.32 kg in 90 days old lambs. The influence of mother's age on the body weight of lambs was not statistically significant ($p>0.05$), Table 4.

Table 4. The effect of mother's age on body weight of 90 days old lambs

Genotype	Mother's age (year)	M	SE	F	Sig.
Pirotška (PI)	1- (two year)	20.240	.281	.515	.598
	2- (three year)	20.588	.243		
	3- (four year)	20.318	.253		
Svrliška (SV)	1- (two year)	24.380	.356	.229	.795
	2- (three year)	24.323	.308		
	3- (four year)	24.083	.320		
Sjenička (SJ)	1- (two year)	23.762	.314	1.599	.203
	2- (three year)	23.249	.272		
	3- (four year)	23.017	.282		
Šarplaninska (SP)	1- (two year)	20.316	.315	.057	.945
	2- (three year)	20.450	.272		
	3- (four year)	20.427	.283		

In Sjenička Pramenka genotype, the highest average body weight (23.76 kg) was found in lambs of the first age group of mothers while the lowest body weight (23.02 kg) were lambs in the third age group of mothers. In second age group of mothers, body weight of lambs in average was (23.25 kg). The statistical analysis showed that mother's age did not have any significant effect on body weight in 90 days old lambs of Sjenička Pramenka ($p>0.05$).

The body weight with 90 days old lambs of Šarplaninska Pramenka was the highest (20.45 kg) in second age group of mothers, slightly lower (20.42 kg) in the third age group of mothers and the lowest (20.31 kg) in the first age group of mothers. The influence of mother's age on the body weight of lambs of Šarplaninska Pramenka genotype was not statistically significant ($p>0.05$).

We can conclude that mother's age did not have significant effect on body weight of 90 day old lambs in all four genotypes of lambs ($p>0.05$).

DISCUSSION

Due to the importance of including numerous impacts on the growth of the flock and in order to properly define the breeding programs of sheep (PETROVIĆ *et al.*, 2013), the effect of mother's age was researched by a number of authors.

We have observed that the influence of mother's age in our research was significant or at the level of significance only for body mass of lambs at birth time.

The results of this study showed that body weight of lambs differed depending on the age of mothers at each growth stages for all four strains of Pramenka Sheep.

The results of our study are consistent with data of PETROVIĆ *et al.* (2011) that showed that mother's age had a significant impact on body weight of lambs at birth in Mis race of sheep. Similarity to our research was found in the study of Mis sheep (CARO PETROVIĆ *et al.*, 2013) that found significant effect of mother's age on the weight of lambs at birth. Also, in the same study of Mis sheep, significant effect of mother's age on the body weight of lambs in the later stages of age up to the weaning was established (CARO PETROVIĆ *et al.*, 2013)

Our results are in agreement with the research in which significant influence of mother's age in lambs of all age phases was not found (ABEGAZ *et al.*, 2005; ABBASI *et al.*, 2012).

In addition to these, other authors have researched the influence of mother's age on the weight of lambs from birth to weaning. Our results confirm that mother's age has impact on the weight at birth, but our results differ when it comes to body weight of lambs in later stages of the research from other authors (ABEGAZ *et al.*, 2005; KUČTIK and DOBEŠ, 2006; RASHIDI *et al.*, 2008; BANEH *et al.*, 2010).

Overall, the significant impact of fixed factors on body weight of lambs of different genotypes, in accordance with our research, are present in other studies (ABEGAZ *et al.*, 2005; RASHIDI *et al.*, 2008; JAFAROGHLI *et al.*, 2010; PETROVIC *et al.*, 2011; CARO PETROVIC *et al.*, 2012).

In our research, it was determined that lambs born from ewes of second age group and third age group, mainly had higher body weight at the time of birth of lambs and at other growth stages after weaning in each strain of Pramenka sheep, particularly in strain Pirotška Pramenka sheep. These results may be attributed to the strong influence of mother's age on their offspring before weaning.

In the research of BANEH and HAFEZIAN (2009) which found that the interaction between gender and age of the mothers had a very significant effect on body weight of lambs from birth to weaning. According to these authors external factors play an important role in the expression of the genetic potential of the lambs.

The influence of mother's age as a factor on values of body weight of lambs was researched by OKUT *et al.* (1999) with the following sheep breeds in the United States: colombia, polipei, rambuje and targee. Their conclusion showed that there is an interaction between the mother and monitored traits. The interaction between body weight of lamb and maternal effects were also examined by CLOETE *et al.*, (2009), PRINCE *et al.*, (2010). OSORIO-AVALOS *et al.*, (2012) whose obtained results showed that interaction of mother age with environmental factors had a significant effect on body weight of lambs.

Relationship between mother's age and environmental factors and their influence on the body weight of lambs was found VAN VLECK *et al.*, (2000). Similar research data on the existence of a significant interaction of year/age of the mother is also found with other authors (SHAHROUDI *et al.*, 2002, 2003; KALANTAR, 2003; MATIKA *et al.*, 2003; OZCAN *et al.*, 2005;

RASHIDI *et al.*, 2008; OSORIO-AVALOS *et al.*, 2012). Some research showed different values (ABEGAZ *et al.*, 2005). Also, in the genotype “zandi” sheep, the effect of the interaction between the type of birth and the age of the mother was researched (MOHAMMADI *et al.*, 2010). BANEH and HAFEZIAN (2009) noted that the interaction between age and gender, age and type of birth, mother’s age had a very significant effect on body weight of lambs from birth to weaning.

Similar unpublished data we obtained in our other investigations which indicated that body weight of lambs from birth to weaning is influenced by other factors as well as environmental factors, interaction between mother’s age and environmental factor, between age and gender, age and type of birth, etc. This data will be published in a different article and we did not present it because the focus of this study was the effect of mother’s age on body weight of lambs from birth to weaning.

CONCLUSION

Results of this research showed variability in body weight of lambs at birth, as well at different stages of growth after weaning in each of four strains of Pramenka sheep. The variability of the body weight of lambs depends also on mother’s age. The results of this research showed that body weight of lambs at early growth stages is influenced by direct maternal genotype, strain of Pramenka sheep and age of ewes.

Pirotska Pramenka has the largest body weight at birth, 30 days and 90 days after birth of lambs from ewes of second age group, while 60 days old lambs had the highest body weight from the ewes of third age group. The influence of mother’s age as a fixed factor on the body weight of lambs of Pirotska Pramenka was on borderline of statistical significance, but still insignificant ($p>0.05$).

In population of Svrlijska Pramenka lamb, mother’s age had a slightly different influence. Namely, the largest body weight of lambs at birth was observed with third age group, while body weight of lambs 30 days old and 90 days old was the highest from ewes of first age group.

The highest body weight at birth time and with 30 days old lambs was from ewes in third age group, while highest body weight of 60 days old lambs was from ewes of second age group and 90 days old lambs was from the ewes in first age group in Sjenička Pramenka. In Svrlijska and Sjenička Pramenka, the influence of mother’s age on body weight of lambs was not statistically significant ($p>0.05$) at each analyzed growth stage.

The lambs of Šarplaninska Pramenka had the highest body weight at birth time and with 30 days old lambs from the ewes of third age group, while the highest body weight were 60 days old lambs from ewes in first age group and 90 days old lambs from the ewes of second age group. In Šarplaninska population, a very significant effect of mother’s age on the body weight of lambs at birth was determined ($p<0.01$) while at the other analyzed growth stages, the effect of mother’s age was not significant.

ACKNOWLEDGEMENTS

This research was supported by the Ministry of Education, Science and Technology Development of Republic of Serbia, Project TR-31001

Received, June 30th, 2018

Accepted November 18th, 2018

REFERENCES

- ABBASI, M.A., R. ABDOLLAHI-APANAH, A. MAGHSOUDI, R. VAEZ TORSHIZI, A. NEJATI JAVAREMI (2012): Evaluation of models for estimation of genetic parameters and maternal effects for early growth traits of Iranian Baluchi sheep. *Small Rum. Res.*, 104: 62-69.
- ABEGAZ, S., J.B. VAN WYK, J.J. OLIVIER (2005): Model comparisons and genetic and environmental parameter estimates of growth and the Kleiber ratio in Horro sheep. *S. Afr. J. Anim. Sci.*, 35:30-40.
- AKTAŞ, A. H., Ş.DURŞUN, Ş.DOĞAN, Z. KIYMA, U. DEMIRCI, İ. HALICI (2015): Effects of ewe live weight and age on reproductive performance, lamb growth, and survival in Central Anatolian Merino sheep. *Arch. Anim. Breed.*, 58: 451-459.
- BANEH, H., S.H. HAFEZIAN (2009): Effects of environmental factors on growth traits in Ghezel sheep. *Afr. J. Biotech.*, 8 (12): 2903-2907.
- BANEH, H., S.H. HAFEZIAN, A. RASHIDI, M. GHOLIZADEH (2010): Estimation of genetic parameters of body weight traits in Ghezel sheep. *Asian-Aust. J. Anim. Sci.*, 23: 149-153.
- CARO PETROVIĆ, V., M.P. PETROVIĆ, M.M. PETROVIĆ, Z. ILIĆ, N. MAKSIMOVIĆ, D. RUŽIĆ-MUSLIĆ, N. STOLIC (2012): Estimation of Phenotypic and Genetic Trends of the Growth Traits in Lipska and Svrlijig Sheep. *Biotech. Animal Husband.*, 28 (4):743-749.
- CLOETE, S.W., J.J. OLIVIER (2009): Genetic parameters and trends for lamb survival and birth weight in a Merino flock divergently selected for multiple rearing ability. *J. Anim. Sci.*, 87(7): 2196-208.
- IBM CORP. RELEASED (2011): IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.
- ILIĆ, Z., J. STOJKOVIĆ, D. RUŽIĆ-MUSLIĆ, V. CARO-PETROVIĆ, R.D. ĐOKOVIĆ, V.S. KUČURBIĆ (2012): The influence of biologically active supplement "Bioril" on performance of fattening lambs. *Biotech. Animal Husband.*, 28 (3): 537-544.
- ILIĆ, Z., A. JEVTIĆ-VUKMIROVIĆ, P.M. PETROVIĆ, V. CARO PETROVIĆ, B. MILOŠEVIĆ, Z. SPASIĆ, B. RISTANOVIĆ (2013): Effect of Mating Method, Sex and Birth Type On Growth Of Lambs. *Biotech. Animal Husband.*, 29 (2): 277-286.
- JAFAROGHLI, M., A. RASHIDI, M.S. MOKHTARI, A.A. SHADPARVAR (2010): (Co) Variance components and genetic parameters estimates for growth traits in Moghani sheep. *Small Rum. Res.*, 91:170-177.
- KALANTAR, M. (2003): Evaluation of some environmental effect on growth traits in Zandi sheep. *Agric. Res.*, 4: 49-58.
- KAMJOO, B., H. BANEH, V. YOUSEFI, A. MANDAL, G. RAHIMI (2014): Genetic parameter estimates for growth traits in Iran black sheep. *J. Appl. Animal Res.*, 42(1): 79-88.
- KUCHTÍK, J., I. DOBEŠ (2006): Effect of some factors on growth of lambs from crossing between the Improved Wallachian and East Friesian. *Czech J. Anim. Sci.*, 51 (2): 54-60.
- MATIKA, O., J.B. VAN WYK, G.J. ERASMUS, R.L. BAKER (2003): Genetic parameter estimates in Sabi sheep. *Livest. Prod. Sci.*, 79: 17-28.
- MOHAMMADI, K., M.T. BEYGI NASSIRI, J. FAYAZI, H.ROSHANFEKR (2010): Effects of Environmental Factors on Pre-Weaning Growth Traits in Zandi Lambs. *J. Animal Vet. Adv.*, 9 (4): 837-840.
- MORRIS, C.A, S., M. HICKEY, J.N. CLARKE (2000): Genetic and environmental factors affecting lamb survival at birth and through to weaning. *New Zealand J. Agric. Res.*, 43:515-524.
- OKUT, H., C.M. BROMLEY, L.D. VAN VLECK, G.D. SNOWDER (1999): Genotypic expression with different ages of dams: III. Weight traits of sheep *Journal Anim. Sci.*, 77 (9): 2372-2378.
- OSORIO-AVALOS, J., H.H. MONTALDO, M. VALENCIA-POSADAS, H. CASTILLO-JUÁREZ, R. ULLOA-ARVIZU (2012): Breed and breed x environment interaction effects for growth traits and survival rate from birth to weaning in crossbred lambs. *J Anim. Sci.*, 90 (12):4239-4247.
- OZCAN, M., B. EKIZ, A. YILMAZ, A. CEYHAN (2005): Genetic parameter estimates for lamb growth traits and greasy fleece weight at first shearing in Turkish Merino sheep. *Small Rum. Res.*, 56: 215-222.
- PETROVIĆ, M.P. (2000): Genetics and breeding of sheep. Belgrade, Naučna knjiga. /in Serbian/
- PETROVIĆ, P.M. (2006): Creation of meaty sheep breed. *Mis sheep*. Institute for Animal Husbandry, Belgrade, 43 pp.

- PETROVIC, M.P., D. RUZIC- MUSLIC, V. CARO PETROVIC, N. MAKSIMOVIC (2011): Influence of environmental factors on birth weight variability of indigenous Serbian breeds of sheep. *African J. Biol.*, 10(22): 4673- 4676.
- PETROVIĆ, M.P., D. RUŽIĆ- MUSLIĆ, N. MAKSIMOVIĆ, N. MEMIŠI (2009): Effect of Environmental and Paragenetic Factors on Birth Mass Variability of Mis Sheep Populations. *Biotech. Animal Husb.*, 25 (3-4): 213-219.
- PETROVIC, M.P., V. CARO PETROVIC, Z. Z. ILIC, D. RUZIC MUSLIC, M. MILENKOVIC, B. MILOSEVIC, D. GRCAK (2013): Features of the New Breed of Sheep in Serbia Called Mis Sheep 1. Reproductive Characteristics and Body Development. *Veterinarija Ir Zootehnika (Vet Med Zoot)*, 64:86.
- PRINCE, L.L., G.R. GOWANE, A. CHOPRA, A.L. ARORA (2010): Estimates of (co)variance components and genetic parameters for growth traits of Avikalin sheep. *Trop. Anim. Health Prod.*, 42: 1093–1101.
- RASHIDI, A., M.S. MOKHTARI, A. SAFI JAHANSHAHI, M.R. MOHAMMAD ABADI (2008): Genetic parameter estimates of pre-weaning growth traits in Kermani sheep. *Small Rumin. Res.*, 74:165-171.
- SHAHROUDI, E.E., M.R. BAHRINI, D. VEN DOULK, M. DANESH MESGARAN (2002): The factor affecting some economical traits in Kermani sheep. *Iran. J. Agr. Sci.*, 33: 395-402.
- SHAHROUDI EFTEKHAR, F., A. SHIRI, J. TWAKOLYAN, M. DANESH, M. MESGARAN (2003): Estimation of maternal effects on growth traits of Kurdish lamb in north of khorasan. *Pjoohesh Sazandegi*, 50: 62-66.
- SKALICKI, Z., P.M. PETROVIĆ, R. TOMIĆ, S. STOJANOVIĆ, P. PERIŠIĆ (2003): Reproductive and productive traits of domestic Pramenka. *Biotech. Animal Husb.*, 19:125-130. /in Serbian/
- VAN VLECK, L.D., K.A. LEYMASTER, T.G. JENKINS (2000): Genetic correlations for daily gain between ram and ewe lambs fed in feedlot conditions and ram lambs fed in Pinpointer units. *J. Anim. Sci.*, 78(5):1155-1158.
- WOJTOWSKT, J., A. SONNE, R. WASSMUTH (1990) Genetic and non genetic effects on growth of Merinolandschaf and Rhon sheep. *Zuchtungskunde*, 62(3): 234-240 (*Anim. Breed. Abst.*, 58(9): 5968, 1990).

UTICAJ STAROSTI MAJKE NA MASU TELA JAGNJADI OD RODJENJA DO ODBIJANJA KOD RAZLIČITIH SOJEVA DOMAĆE OVCE PRAMENKE

Bojana RISTANOVIĆ, Zoran Ž. ILIĆ

Univerzitet u Prištini, Poljoprivredni fakultet, Kosovska Mitrovica, Lešak, Kosovo i Metohija, Srbija

Izvod

Ova istraživanja su sprovedena u populaciji ovce Pramenka, koja je dominantna rasa ovce u Srbiji. Cilj izučavanja je bio da se ustanovi uticaj starosti majke na ponašanje stada i da se determiniše kada je optimalno vreme odvajanje jagnjadi od majke. U istraživanja je uključeno 1800 jedinki od četiri soja (Svrljiški, Pirotski, Sjenički, Šarplaninski) ovce Pramenka (450 jagnjadi po soju) za analizu težine tela jagnjadi. Težina tela je merena u momentu rođenja, zatim kod jagnjadi od 30, 60 i 90 dana starosti u toku tri godine eksperimenta (2011-2013). Dobijeni rezultati su pokazali da postoji variranje težine tela u vreme rođenja kao i kod jagnjadi starih 30, 60 i 90 dana, u zavisnosti od starosti majke, kod svih sojeva ovce pramenke. U momentu rođenja, najveća prosečna vrednost težine bila je kod jagnjadi od majki iz druge starosne grupe kod pirotke pramenke (3.79 kg), dok je najveća težina tela jagnjadi od majki iz treće starosne grupe nadjena kod preostal tri soja svrljiška (3.91 kg), sjenička (3.74 kg) i šarplaninska pramenka (3.97 kg). Najveća težina tela je nadjena za jagnjad od 30 dana starosti rođena od majki iz druge starosne gupe kod pirotke pramenke (9.36 kg), zatim od majki iz prve starosne grupe kod svrljiške pramenke (9.89 kg) i od majke treće starosne grupe kod sjeničke (9.51 kg) i šarplaninske pramenke (9.41 kg). Kod jagnjadi od 60 dana starosti najveća težina tela je nadjena čije su majke iz treće starosne grupe kod pirotke pramenke (15.85 kg), iz druge starosne grupe kod svrljiške (15.51 kg) i sjeničke pramenke (15.50 kg), dok je najveća težina tela nadjena kod jagnjadi od majki iz prve starosne grupe kod šarplaninske pramenke (14.45 kg). U vreme od 90 dana posle rođenja, najveća prosečna težina jagnjadi je nađena u drugoj starosnoj grupi kod pirotkog (20.58 kg) i šarplaninskog genotipa pramneke (20.45 kg) a najveća prosečna težina u prvoj starosnoj grupi je nađena u svrljiškom (24.38 kg) i sjeničkom soju ovce pramenke (23.76kg). Varijabilnost telesne težine jagnjadi na rođenju, kao i u različitim fazama rasta nakon odbijanja, u ranijim fazama, je pod uticajem genotipa majke, sojeva Pramenke, i starosti ovaca.

Primljeno 30. VI.2018.

Odobreno 18. XI. 2018.